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45P Cost-effectiveness analysis of VEGF-A testing to predict response to bevacizumab (BEV) as a component of neo-adjuvant therapy of early HER-2 negative breast cancer

P.R. Blank[1], S. Loibl[2], B.K. Linderholm[3], S. Caramuta[3], V. Nekljudova[2], T.D. Szucs[1], J. Van Stiphout[1], Z. Ademi[1], G. von Minckwitz[2], M. Schwenkglenks[1]
[1]*European Center of Pharmaceutical Medicine (ECPM), University of Basel Institute of Pharmaceutical Medicine, Basel, Switzerland*
[2]*Medicine and Research, German Breast Group, GBG Forschungs GmbH, Neu-Isenburg, Germany*
[3]*Department of Oncology/Pathology, Karolinska University Hospital and Karolinska Institute-Huddinge, Stockholm, Sweden*

Background: The effect of BEV to neo-adjuvant chemotherapy is modest in unselected HER2-negative (HER2-) breast cancer (BC) patients. VEGF-A has been suggested as a predictor for response to neoadjuvant BEV. We estimated the cost-effectiveness of using VEGF-A testing and corresponding treatment strategies in the neoadjuvant treatment of hormone receptor (estrogen or progesterone) positive (HR+), HER2- BC.

Methods: Using a life-long Markov state transition model, we determined the health economic impact and incremental cost-effectiveness ration (ICER) of VEGF-A guided use of BEV therapy. Six alternative strategies were compared (four different VEGF-A cut-off values; two implying the use of BEV in no or all patients. Overall and metastasis-free survival information was derived from GeparQuinto (n = 830) trial (EudraCT No: 2006-005834-19). Effectiveness was assessed as quality-adjusted life-years (QALYs). Costs (in EUR, year 2013) were assessed from a German third-party payer perspective.

Results: Lifetime costs per patient ranged from EUR 37'042 (reference strategy; no BEV) to EUR 78'367 (BEV to all). No BEV therapy yielded 14.031 QALYs per patient. The VEGF-A guided strategies achieved between 14.220 (cut-off 450 pg/mL) and 14.235 (cut-off 339 pg/mL) QALYs. In comparison with no BEV therapy, the most preferable strategy (cut-off 450 pg/mL) yielded additional costs of 11'191 EUR and 0.189 QALYs per patient (ICER 59'161 EUR/QALY) (Tab 1, only undominated strategies shown). Results remained robust in deterministic sensitivity analyses.

Conclusion: Our study suggests that VEGF-A testing could be sensibly used to guide the neo-adjuvant administration of BEV in HR+ HER2- BC. Compared to not using BEV, the use of a cut-off value of 450 pg/mL might be cost-effective in Germany. Tab 1

Table: 45P

	Cost (EUR)	Incremental Cost (EUR)	QALY	Incremental effect (QALY)	ICER (EUR/QALY)
No test, no BEV	37'042		14,031		
VEGF-A 450	48'233	11'191	14,220	0,189	59'161 (vs. reference)
VEGF-A 400	50380	1'338	14,230	0,199	227'344 (vs. VEGF-A 450)
VEGF-A 339	54'061	17'019	14,235	0,204	673'769 (vs. VEGF-A 400)

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